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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/689,565	10/20/2003	Paul Underbrink	ST02010USU (246-US-U1)	8409
7590 Jennifer Hammond The Eclipse Group 10453 Raintree Lane Northridge, CA 91326			EXAMINER FOTAKIS, ARISTOCRATIS	
			ART UNIT 2611	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/689,565	Applicant(s) UNDERBRINK ET AL.	
	Examiner ARISTOCRATIS FOTAKIS	Art Unit 2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03/31/2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 - 24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 - 24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

Applicant's arguments with respect to claims 1 - 24 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1 – 24 are rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure which is not enabling. Independent claim1, 9 and 17, recite of a processor that identifies a CW jamming signal by employing a predetermined fixed code for a PRN code. In reviewing the specification there was no guidance to allow of one of skilled in the art to replace a pseudorandom code with a fixed predetermined sequence of all ones, since no information was provided on how or why the fixed code of all ones would be required to replace the well known anti-jamming and correlation properties of a pseudorandom code to track the CW jamming signal. It would be unpredictable to practice Applicant's claimed invention and therefore require an undue amount of experimentation to make and use the claimed invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, 9 and 17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims recite the limitation "employs a fixed predetermined code for a pseudorandom number (PRN) code" in line 2. It is not clear if the claim is reciting of a fixed predetermined code instead of a pseudorandom number (PRN) code or replacing a pseudorandom number (PRN) code or whether it recites a fixed predetermined code that is a pseudorandom number (PRN) code. This is indefinite.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

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1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 5 - 6, 9, 13- 14, 17 and 21 - 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Norman et al. (US 6,282,231) in view of Rodal (US 5,650,785).

Re claims 1 and 5:

As shown in figure 1, Norman et al. disclose a radio receiver apparatus in receipt of a spread spectrum radio signal having a first signal tracking channel and a second signal tracking channel (column 7, lines 20-32), comprising:

a demodulator (see column 4, lines 51- column 5, lines 1-2) that demodulates a first signal in the spread spectrum radio signal into the first signal tracking channel and

a second signal in the spread spectrum radio signal into the second signal tracking channel;

a crosscorrelator (block 40 in figure 1) connected to the first tracking channel and the second tracking channel;

a signal processor (blocks 40 and 50 in figure 1) that identify a carrier wave jamming signal with the crosscorrelator that is in a mode to identify CW jamming signals (Col 7, Lines 14 – 27, 51 – 57 and Col 8, Lines 29 – 55);

a tracker (block 50 in figure 1) that tracks the carrier wave jamming signal; and

a signal canceller (block 60 in figure 1) subtracts the carrier wave jamming signal from the spread spectrum signal.

However, Norman does not specifically teach of the signal processor that identifies a carrier wave jamming signal with the crosscorrelator that is in a mode to identify carrier wave jamming signals and employs a fixed predetermined code for a pseudo random number (PRN) code.

Rodal discloses of a low power GPS receiver where a correlation system (#22, Fig.1) correlated the received signal with a sequence of bits provided by bit source (#32, Fig.1). Optionally, the bit source 32 may provide a substitute bit stream of all 1's, a random sequence of 0's and 1's, a pseudorandom sequence of 0's and 1's, or a fixed sequence of 0's and 1's (Col 5, Lines 46 - 67).

It would have been an obvious matter of design choice to correlate the received signal with a fixed predetermined code of all ones instead of the pseudorandom (PRN) sequence, since applicant has not disclosed that the correlation with a code of all ones

solves any stated problem and it appears that the invention would perform equally well with the use of code of all ones as well as a PRN code as disclosed by Rodal.

Re claims 9 and 13:

As shown in figure 1, Norman et al. disclose a method of removing a carrier wave jamming signal from a spread spectrum signal having a first signal tracking channel and a second signal tracking channel (column 7, lines 20-33), comprising:

demodulating a first signal in the spread spectrum radio signal into the first signal tracking channel and a second signal in the spread spectrum radio signal into the second signal tracking channel (see column 4, lines 51- column 5, lines 1-2);

correlating the first tracking channel and the second tracking channel with a crosscorrelator (block 40 in figure 1);

changing the crosscorrelator from a cross-correlation identification mode to a carrier wave jamming identification mode (Col 7, Lines 14 – 27, 51 – 57 and Col 8, Lines 29 – 55);

computating a product of the first signal tracking channel and the second signal tracking channel to obtain a carrier wave jamming signal (blocks 40 and 50 in figure 1);

tracking the carrier wave jamming signal (block 50 in figure i); and

canceling the carrier wave jamming signal from the spread spectrum signal (block 60 in figure 1).

However, Norman does not specifically teach of the signal processor that identifies a carrier wave jamming signal with the crosscorrelator that is in a mode to

identify carrier wave jamming signals and employs a fixed predetermined code for a pseudo random number (PRN) code.

Rodal discloses of a low power GPS receiver where a correlation system (#22, Fig.1) correlated the received signal with a sequence of bits provided by bit source (#32, Fig.1). Optionally, the bit source 32 may provide a substitute bit stream of all 1's, a random sequence of 0's and 1's, a pseudorandom sequence of 0's and 1's, or a fixed sequence of 0's and 1's (Col 5, Lines 46 - 67).

It would have been an obvious matter of design choice to correlate the received signal with a fixed predetermined code of all ones instead of the pseudorandom (PRN) sequence, since applicant has not disclosed that the correlation with a code of all ones solves any stated problem and it appears that the invention would perform equally well with the use of code of all ones as well as a PRN code as disclosed by Rodal.

Re claims 17 and 21: As shown in figure 1, Norman et al. disclose a receiver in receipt of a spread spectrum radio signal having a first signal tracking channel and a second signal tracking channel (column 7, lines 20-33), comprising:

demodulation means (see column 4, lines 51- column 5, lines 1-2) for demodulating a first signal in the spread spectrum radio signal into the first signal tracking channel and a second signal in the spread spectrum radio signal into the second signal tracking channel;

correlation means for correlating the first tracking channel and the second tracking channel (block 40 in figure 1);

computation means for computing a product of the first signal tracking channel and the second signal tracking channel to obtain a carrier wave jamming signal (blocks 40 and 50 in figure 1), when the correlation means is in a carrier wave jamming identification mode (Col 7, Lines 14 – 27, 51 – 57 and Col 8, Lines 29 – 55);

means for tracking the carrier wave jamming signal (block 50 in figure 1); and

canceling means that cancels the carrier wave jamming signal from the spread spectrum signal (block 60 in figure 1).

However, Norman does not specifically teach of the signal processor that identifies a carrier wave jamming signal with the crosscorrelator that is in a mode to identify carrier wave jamming signals and employs a fixed predetermined code for a pseudo random number (PRN) code.

Rodal discloses of a low power GPS receiver where a correlation system (#22, Fig.1) correlated the received signal with a sequence of bits provided by bit source (#32, Fig.1). Optionally, the bit source 32 may provide a substitute bit stream of all 1's, a random sequence of 0's and 1's, a pseudorandom sequence of 0's and 1's, or a fixed sequence of 0's and 1's (Col 5, Lines 46 - 67).

It would have been an obvious matter of design choice to correlate the received signal with a fixed predetermined code of all ones instead of the pseudorandom (PRN) sequence, since applicant has not disclosed that the correlation with a code of all ones solves any stated problem and it appears that the invention would perform equally well with the use of code of all ones as well as a PRN code as disclosed by Rodal.

Re claims 6, 14, 22:

Norman et al. further teach the spread spectrum radio signal is a position signal (column 7, lines 10-13).

Claims 2-4, 10-12 and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Norman and Rodal in view of Heinzl et al. (US 2002/0012411).

Re claims 2, 10, 18:

Norman and Rodal disclose all of the subject matters in claim 1 above except for a signal generator that generates a replica carrier wave jamming signal having a phase from the carrier wave jamming signal having another phase and subtracts the replica carrier wave jamming signal from the spread spectrum signal to cancel the carrier wave jamming signal.

However, Heinzl et al. teach a signal generator that generates a replica carrier wave jamming signal and subtracts the replica carrier wave jamming signal from the spread spectrum signal to cancel the carrier wave jamming signal (page 1, paragraph [0011]).

It is desirable to include a signal generator that generates a replica carrier wave jamming signal and subtracts the replica carrier wave jamming signal from the spread spectrum signal to cancel the carrier wave jamming signal to enable GPS and other RF navigation receivers to be structured flexibly to improve anti-jamming capability.

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Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include a signal generator that generates a replica carrier wave jamming signal and subtracts the replica carrier wave jamming signal from the spread spectrum signal to cancel the carrier wave jamming signal to provide improved resistance to jamming signals.

Re claims 3, 11, 19:

Heinzl et al. further teach a signal rotator that rotates the phase of the replica carrier wave jamming signal (page 3, paragraphs [0041] and [0042]).

Re claims 4, 12, 20:

Heinzl et al. further teach the signal rotator .adjusts the phase of the replica carrier wave jamming signal to match the other phase of the carrier wave jamming signal in the spread spectrum signal (page 3, paragraphs [0041] and [0042]).

Claims 7, 8, 15, 16, 23, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Norman and Rodal in view of Van Stralen et al. (US 6,621,855).

Re claims 7, 15, 23:

Norma and Rodal disclose all of the subject matter in claim 1 above except for crosscorrelator is at least a 1024 bit wide correlator.

However, Van Stralen et al. disclose crosscorrelator is at least a 1024 bit wide correlator (column 3, lines 45-50).

It is desirable to have a crosscorrelator is at least a 1024 bit wide correlator to improve the reliability of the detection of timing and frequency estimates especially when the signals are weak (column 11, lines 47-50). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have a crosscorrelator is at least a 1024 bit wide correlator as taught by Van Stralen et al. in the system as taught by Norman et al. to improve the reliability of the detection of timing and frequency estimates (column 11, lines 47-50).

Re claims 8, 16, 24:

Van Stralen et al. further teach the crosscorrelator includes an at least a 1024 bit wide match filter (column 3, lines 45-65).

It is desirable to have the crosscorrelator further includes an at least a 1024 bit wide match filter to improve the reliability of the detection of timing and frequency estimates especially when the signals are weak (column 11, lines 47-50). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have the crosscorrelator includes an at least a 1024 bit wide match filter as taught by Van Stralen et al. in the system as taught by Norman et al. to improve the reliability of the detection of timing and frequency estimates (column 11, lines 47-50).

Response to Arguments

Applicant's arguments with respect to the claim have been considered but are moot in view of the new ground(s) of rejection.

Applicants have submitted that the fixed PRN code is all ones and is described and taught in the specification and the claim limitations are supported and enabled by the specification and drawings.

Examiner disagrees that a fixed PRN code can be a code of all ones for the reason that a code of all ones is not random. Examiner submits that the claim limitations are not supported and enabled by Applicants disclosure (Please see more above in 112 1st rejection).

Applicants have submitted that those skilled in the art understand that a CW jamming signal is not a signal that has been encoded with a PRN code prior to transmission.

Examiner also disagrees that those skilled in the art understand that a CW jamming signal is not a signal that has been encoded with a PRN code prior to transmission. It should be reminded that the CW jamming signal is interference from different CDMA communication systems and it is well known that in CDMA the signal is correlated with a PRN code to spread the signal before transmission.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aristocratis Fotakis whose telephone number is (571) 270-1206. The examiner can normally be reached on Monday - Thursday 7 - 5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh M. Fan can be reached on (571) 272-3042. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Aristocratis Fotakis/

Examiner, Art Unit 2611

/CHIEH M FAN/

Supervisory Patent Examiner, Art Unit 2611